

Network Code Demand Response Public Workshop

**13 October 2023
09:00-11:00
Brussels**



Agenda

<i>Time</i>	<i>Subject</i>	<i>Speaker</i>
09:00-09:10	1. Introduction 1) Welcome 2) Background	<i>Torsten Knop, Fabio Genoese</i>
09:10-09:30	2. Title I General provisions 3. Title II General requirements for market access	<i>Paul de Wit, Giao Do</i>
09:30-09:50	4. Title III Prequalification requirements and process	<i>Georg Hartner, Philipp Meier</i>
09:50-10:10	5. Title IV Market design for congestion management and voltage control 6. Title V Systems operators-owned storage facilities	<i>Yvonne Ruwaida, Olivia Alonso</i>
10:10-10:30	7. Title VI Distribution network development 8. Title VII TSO-DSO coordination and DSO-DSO coordination 9. Title VIII Data exchange requirements from grid users 10. Title VI Voltage control 11. Title X Derogations, and monitoring 12. Title XI Transitional and final provisions	<i>Daniel Davi Arderius, Robert Kielak</i>
10:30-10:55	13. Questions and Answers	<i>Torsten Knop, Fabio Genoese</i>
10:55-11:00	14. Closing	<i>Torsten Knop, Fabio Genoese</i>

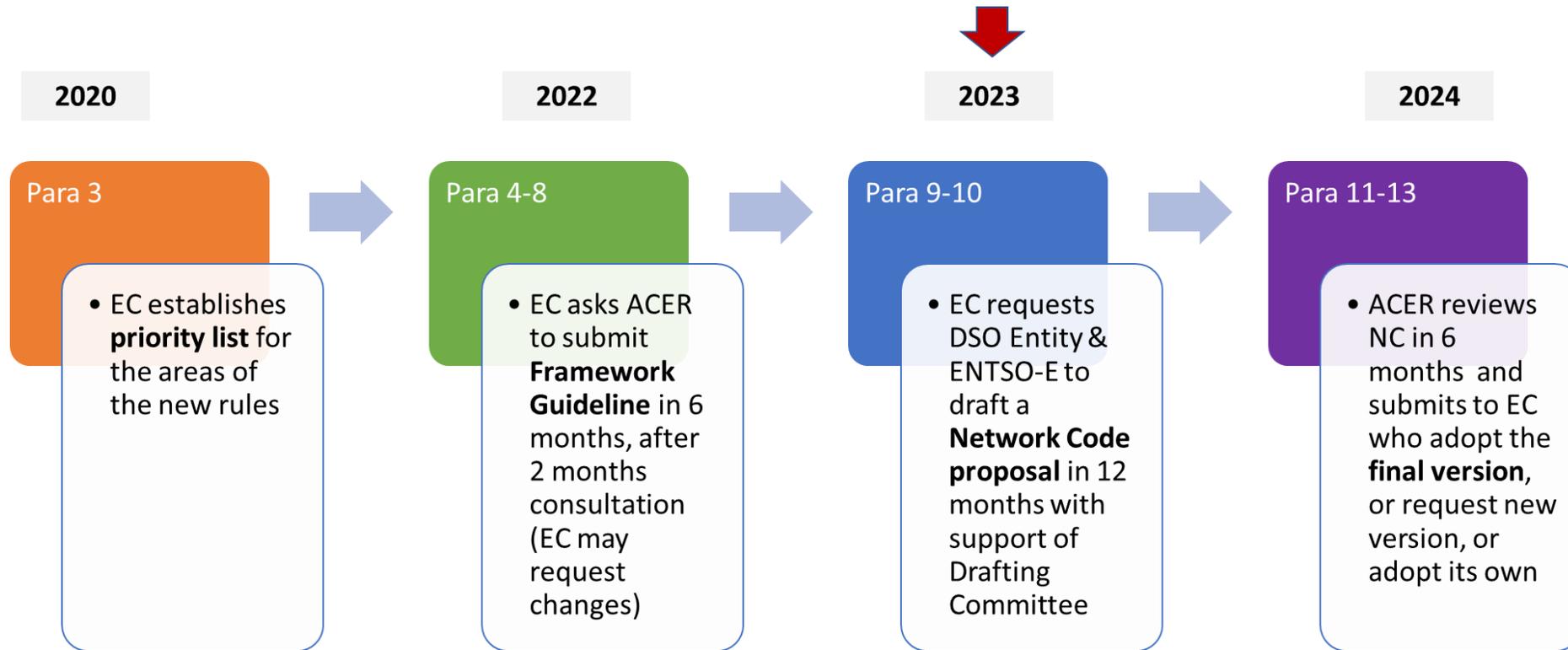
Rules of Engagement

- All the participants but speakers will stay muted.
- Questions and comments from the public will be collected via the questions tool in Microsoft Teams.
- Addressed questions will be answered at the end of the workshop by the Development team members.

The NC DR will help to unlock flexibility

- Following the entry into force of the **Clean Energy Package**, the DSO Entity and ENTSO-E have been tasked to develop a **new Network Code on Demand Response**.
- The overall aim is to provide an EU-framework for the **integration of technology-agnostic distributed flexibility** in transmission and distribution-related services for the overall benefit of consumers and contributing to **decarbonization goals**, by:
 - Simplifying **market access** requirements such as registration and prequalification procedures, and the definition of aggregation models;
 - Establishing principles for the **market design** for congestion management and voltage control services;
 - Facilitating the standardisation of **products** for these services at national level;
 - Enhancing the framework for **cooperation between TSOs and DSOs** by ensuring access to the necessary data from each other and from grid users to operate the system.
- The Network Code will be complemented by **national terms, conditions and methodologies**. Their development through common proposals is part of the system of systems perspective.

Timeline

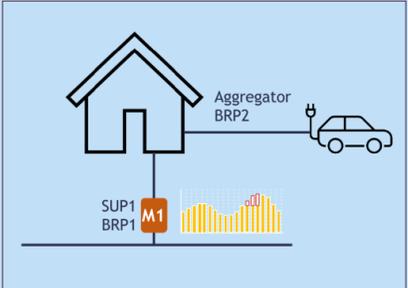
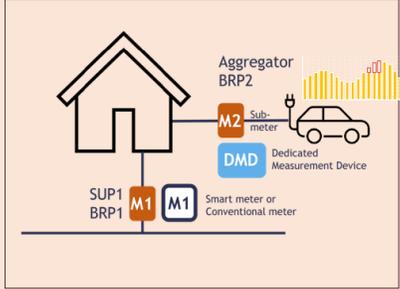


- The [Public consultation on NC DR](#) is ongoing for 6 weeks from 29 September to 10 November 2023.
- Current Position: Second public workshop on the NC Demand Response on 13 October 2023.

2. Title I General provisions

Art	Title I General Provision	Highlights
1	Subject matter	<ul style="list-style-type: none"> This future rule lays down the requirements in relation to demand response, including rules on aggregation, energy storage, and demand curtailment rules, to contribute to market integration, non-discrimination, effective competition and the efficient functioning of the market. The requirements shall apply to TSOs, DSOs, regulatory authorities, ACER, ENTSO-E, EU DSO Entity, third parties other market participants, including customers and resource providers for demand response including load, storage and distributed generation whether aggregated or not. Articles 5 to 8: process to develop, approve, and amend the national Terms and Conditions (TCs). Articles 9 to 12: process to develop, approve, amend and publish the Union-wide Terms and Conditions or Methodologies (TCMs). Art 13 and 14: The public consultation for national TCs and Union-wide TCMs for a period not less than 1 month. Article 15: The Agency, in close cooperation with EU DSO Entity and ENTSO-E, shall organise stakeholder involvement regarding secure system operation and other aspects of the amendments and implementation of this Regulation. Such involvement shall include regular meetings with stakeholders to identify problems and propose improvements notably related to the areas covered in this Regulation.
2	Definitions	
3	Scope of application	
4	Objectives and regulatory aspects	
5	National process to develop national terms and conditions	
6	Common national terms and conditions	
7	Approval of common national terms and conditions	
8	Amendments to common national terms and conditions	
9	Union-wide terms and conditions or methodologies	
10	Approval of Union-wide terms and conditions or methodologies	
11	Amendments to Union-wide terms and conditions or methodologies	
12	Publication of Union-wide terms and conditions or methodologies on the internet	
13	Public consultation for common national terms and conditions	
14	Public consultation for Union-wide terms and conditions or methodologies	
15	Stakeholder involvement	
16	Delegation and assignments of tasks	
17	Recovery of Costs	
18	Confidentiality Obligations	

3. Title II General Requirements For Market Access

Art	Chapter1. Aggregation Models	Highlights
19	Aggregation models	<ul style="list-style-type: none"> Aggregation models:
20	Energy allocation, balance responsibility in each aggregation model category and imbalance adjustment	<div style="display: flex; justify-content: space-around;"> <div data-bbox="901 322 1538 968" style="width: 48%;"> <p>Model A (Non metered flexibility resource)</p>  <ul style="list-style-type: none"> The delivery of the service provider can only be validated by comparing the baseline of the connection point with the M1 measurements. No activation: BRP1 delivery volume = M1 During activation: BRP2 delivery volume = M1 - baseline M1 </div> <div data-bbox="1564 322 2372 968" style="width: 48%;"> <p>Model B (Metered flexibility resource)</p>  <ul style="list-style-type: none"> The delivery of the service provider can be validated by comparing the baseline of the flexibility resource with the M2/DMD measurements. The fact of having two different metering points (measuring the connection point and the flexibility resource) enables to unambiguously assign the imbalances to the relevant parties. No activation: BRP1 delivery volume = M1 During activation: <ul style="list-style-type: none"> BRP1 deliver volume = M1 - (M2/DMD - baseline M2/DMD) BRP2 delivery volume = (M2/DMD - baseline M2/DMD) </div> </div>
21	Roles and responsibilities of market parties and systems operators related to Aggregation Models	
22	Financial compensation	
23	Costs of suppliers/BRPs and benefits of the independent aggregators to other MP	
24	Data exchange process for aggregation models	<ul style="list-style-type: none"> Article 22: Optionally financial compensations between suppliers and service providers if those market participants are directly affected by the balancing of flexibility services activation. The method for calculating the financial compensation may foresee either a regulated price, a fixed price, a specific formula, or a bilateral agreement between involved market parties. Article 24: Basic data exchange rules per process step

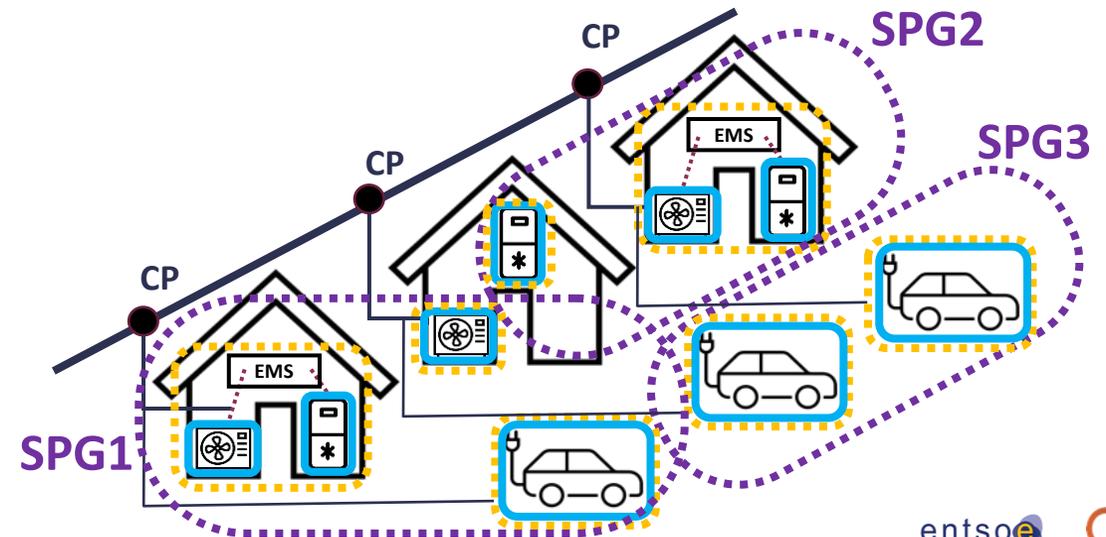
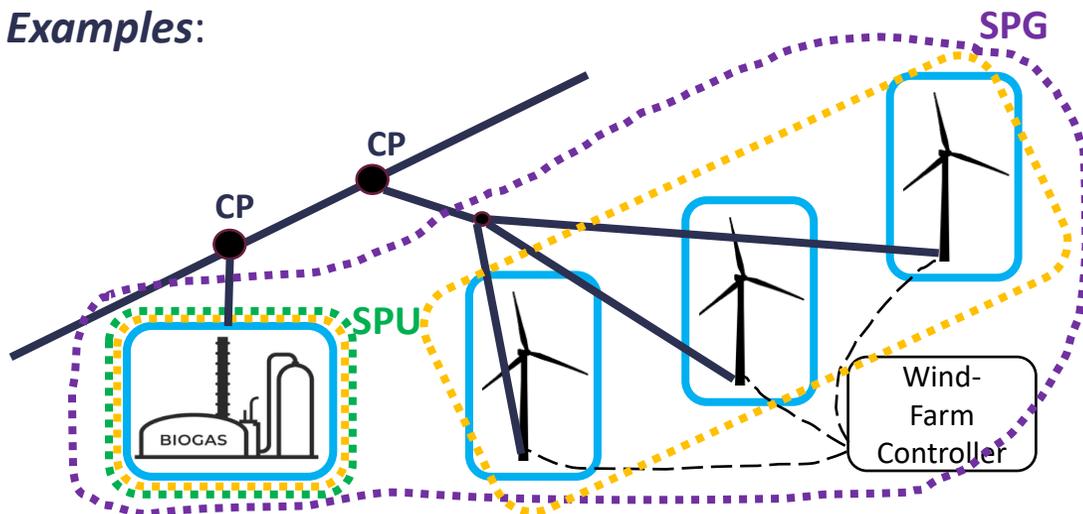
3. Title II General requirements for market access

Art	Chapter2. Baseline Calculation and Measurement	Highlights
25	General principles for baselining methods	<ul style="list-style-type: none"> • Different baselining methods can be nationally implemented and applied. To enable innovation of baselining, new methods can also be proposed.
26	Baselining method: specification and validation	<ul style="list-style-type: none"> • The national TCs on the definition, calculation and validation of baseline methods will describe the process to apply, the data to share, the process to support innovation and the publication of accepted baseline methods. • Further standardisation will be considered at least 5 years, after the entering into force of this Regulation.
Art	Chapter3. Settlement	Highlights
27	General principles for settlement of congestion and voltage services and settlement related data exchange	<ul style="list-style-type: none"> • Establishment of a settlement procedure at national level for the local services. • Requirements on the necessary data exchange between the relevant market parties and the systems operators to activate and settle a local service.
28	Imbalance settlement	<ul style="list-style-type: none"> • Pursuant to the national TCs, the imbalance settlement will be proceeded.
Art	Chapter4. Minimum Bid Granularity for standard balancing products	Highlights
29	Roadmap for the implementation of balancing bids granularity	<ul style="list-style-type: none"> • NC DR requires the reduction of bid granularity of standard balancing bids in order to facilitate participation of smaller resources in balancing services by means of aggregation.

4. Title III Prequalification requirements and process

Art	Definitions	Highlights
2	Definitions of Technical Resource, Controllable Units, Service Providing Unit/Group are vital for the understanding of the code	<ul style="list-style-type: none"> • ‘Technical resource’ means an individual power generating module of type A, B, or C as defined according to Regulation (EU) 2016/631 connected to the distribution system, individual energy storage unit, demand units according to Commission Regulation (EU) 2016/1388 or any other consumption device. • ‘Controllable unit’ or ‘CU’, means a single technical resource or an ensemble of technical resources behind the same single connection point, if these technical resources are commonly controlled. • ‘Service providing unit’ or ‘SPU’, means a single controllable unit or an ensemble of controllable units connected to the same single connection point. SPU is defined by the service provider to provide balancing, congestion management and voltage control services. • ‘Service providing group’ or ‘SPG’, means an aggregation of controllable units connected to more than one connection point. SPG is defined by the service provider to provide balancing, congestion management and voltage control services.

Examples:



4. Title III Prequalification requirements and process

Art	Chapter5. General Requirements	Highlights
30	Qualification for Service Providers	<ul style="list-style-type: none"> Prequalification is to be differentiate into three sub-categories of SP qualification, (SPU/SPG) product prequalification or verification and grid prequalification. Article 30 describes the main qualification criteria for SP for provide services, which is evaluated by the SP qualifying responsible. Article 31 describes the basic allocation of product types into product prequalification and product verification and respective exceptions. Article 32 describes the criteria for reassessment of product prequalification or verification together with rules for simplification when those procedures need to be repeated. Article 33 describes rules for switching between SPs and between SPUs/SPGs of the same SP.
31	Pre-Conditions and Applicability of the product prequalification and product verification processes	
32	Criteria for reassessment of product prequalification and product verification	
33	Switching of Controllable Units	

‘CU Operator’ means a party responsible for controlling a CU. This can either be the final customer itself or a third party.

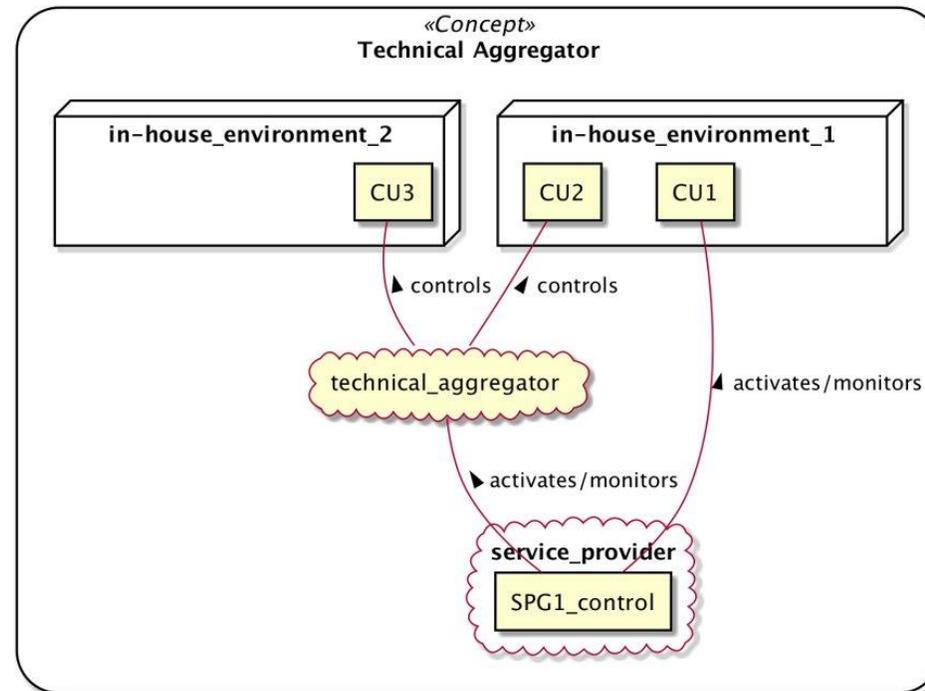
‘Technical aggregator’ means a third party, delegated by the final customer, who combines and controls multiple CUs and interacts with a SP.

SP- Service Provider

CU- Controllable Unit

SPG- Service Providing Group

SPU- Service Providing Unit



4. Title III Prequalification requirements and process

Art	Chapter 6. Product Prequalification	Highlights
34	Requirements for product prequalification	<ul style="list-style-type: none"> • <i>Product prequalification/verification shall only be conducted by one responsible party (Product Prequalifying Responsible - PPR).</i> • <i>Product Prequalifying Responsible's task is to evaluate the SPU/SPGs capability to meet the product requirements and potentially conduct an activation test (conditionally and further simplified for small or standardized devices).</i> • <i>Specific undertakings for balancing products to improve harmonization in the prequalification processes.</i>
35	Provisions for prequalification for standard and specific balancing products	
36	The congestion management and voltage control services product prequalification process	

Art	Chapter 7. Product Verification	Highlights
37	Product Verification Requirements	<ul style="list-style-type: none"> • <i>Preliminary market access, SPU/SPGs capability is checked during market participation.</i> • <i>Default process for congestion management and voltage control products.</i> • <i>Capability is checked by Product Prequalifying Responsible with the verification criteria (to be defined at national level).</i>
38	Product Verification Process	

4. Title III Prequalification requirements and process

Art	Chapter 8. Requirements for Flexibility Master Data Exchange for Prequalification	Highlights
39	Principles for Governance and Interoperability	<ul style="list-style-type: none"> Automated and digitalized solutions first – all data exchange must be possible to online applications and non-discriminatory APIs.
40	Principles and requirements for data exchange in the prequalification phase	<p>The diagram illustrates two architectural models for a Flex Register. A central cloud notes that 'two main setups supported (and more)'. OneCentralFlexRegister: A Service Provider A (stick figure) registers/updates at a 'common front-door' (yellow box). This front-door interacts with an 'SP module' (yellow box), which in turn interacts with a 'CU module' (yellow box). DeCentralFlexRegister: A Service Provider B (stick figure) registers/updates at a 'common front-door' (yellow box). This front-door interacts with an 'SP module' (yellow box). The SP module then interacts with three optional 'Connecting SO' components: '«Option» Connecting SO 1', '«Option» Connecting SO 2', and '«Option» Connecting SO 3'. Each of these components contains a 'CU module' (yellow box).</p>
41	Principles and requirements for operators of flexibility register platforms	
42	SP module procedures	
43	CU module procedures	
44	Principles and requirements for data management for product prequalification and product verification	<ul style="list-style-type: none"> Characteristics about an SPU or SPG that have been assessed by one Product Prequalification Responsible (PPR) shall also be accessible to other PPRs to avoid duplication of testings/processes.

4. Title III Prequalification requirements and process

Art	Chapter9. National Harmonisation of Market Access Processes	Highlights
45	Principles for national implementation	<ul style="list-style-type: none">• As a matter of principle, the NC draft strives to eliminate unnecessary MS divergence to the greatest possible extent.• National specificities for registration and prequalification will be ruled in the “national terms and conditions for service providers”.• ToEq mechanism defined in the national terms and conditions for service providers to simplify the participation of SPU and SPGs in multiple markets. It provides a single national point of reference to store a common list of ‘comparable qualification attributes’ and defines how to make necessary data available to systems operators and market platform operators in the process of registering new SPUs and SPGs.• Team will work towards facilitating a bit more a European ToEq.
46	Table of Equivalences	

5. Title IV Market design for congestion management and voltage control

Art	Chapter9. National Harmonisation of Market Access Processes	Highlights
47	Solutions for congestion and voltage issues through active power	<ul style="list-style-type: none">• Market based solutions as default.• Requirement for system operators to make effective and efficient use of the 'tools' in their hands (in line with the national framework) when solving congestions and voltage issues. Transparency and coordination are a must in the arbitration between solutions and in the operational application of solutions to solve network issues.• List of main contents and principles applicable to intrazonal congestion management and voltage control markets, that shall be developed and considered in the development of national terms and conditions, while paying attention to the national and more local context.
48	National terms and conditions for market design for congestion management and voltage control services through active power	

5. Title IV Market design for congestion management and voltage control

Art	Chapter9. National Harmonisation of Market Access Processes	Highlights
48	National terms and conditions for market design for congestion management and voltage control services through active power	<ul style="list-style-type: none">• Common assessment of existing markets and proposal delivered to NRA, on the basis of their effectiveness and efficiency and of their compliance with NC DR.• Common assessment shall be sent for approval to respective national regulatory authority.• National regulatory authority shall, in line with the applicable national process, adopt or if applicable submit to the relevant Member State authorities a proposal for updating relevant regulation.• Additionally, common proposals for terms and conditions for development of intrazonal congestion management and voltage control markets taking into account the result of the common assessment where applicable in line with article 5-8.• System operators entitled to present common proposal to national authority to complement non-market based national approach when that has been so decided by national authority.

5. Title IV Market design for congestion management and voltage control

Art	Chapter9. National Harmonisation of Market Access Processes	Highlights
49	Principles for procurement and pricing for market-based congestion management and voltage control services	<ul style="list-style-type: none"> • Procurement shall be non-discriminatory, technology neutral, ensuring timely delivery, aligned with pan-EU processes and allowing the activation of products for different purposes or in different grids. • When so technically feasible, products can be defined in such a way that they can tackle different needs. Service providers shall only be remunerated once for the delivered product. • Efficient and fair pricing mechanism, allowing variations depending on product, voltage level, when the product is contracted, and including as applicable differences between energy prices and capacity/availability prices in capacity markets of tenders. • Submission of bids from non-precontracted providers in capacity markets shall be allowed. • Conditions for tender procedures to enable not yet contracted or installed assets. • Use of non-firm connection agreements shall not lead to market-distortion. • Indicative publication of long-term needs and daily ex-ante publication when necessary for market operation while avoiding market distortion. • Criteria for market interoperability and coherency between all (wholesale and local) markets, while avoiding market distortion. • Allow for reusing non-selected bids under service provider consent.
50	Principles for procuring by tender procedure	
51	Principles for applying non-firm connection agreements	
52	Publication of information	
53	Principles for the coordination and interoperability between local and day-ahead, intraday and balancing markets	

5. Title IV Market design for congestion management and voltage control

Art	Chapter9. National Harmonisation of Market Access Processes	Highlights
54	Requirements for procuring system operators	<ul style="list-style-type: none"> • Non-discriminatory behavior and neutrality of procuring system operator and of operators of local market.
55	General requirements to local market operators	<ul style="list-style-type: none"> • Description of functional requirements and process for nominating local market operators in national terms and conditions developing congestion management and voltage control markets (local markets).
56	Local market operator(s)	<ul style="list-style-type: none"> • Local market operator(s) can be the TSO(s) or DSO(s) which procure the services, either alone or together; another TSO or DSO, either alone or together; a third party.
57	Tasks of local market operators	<ul style="list-style-type: none"> • NRA involvement in ensuring compliance with the requirements for nominated local market operators. • Revocation of nomination by NRA in case of non-compliance. • Main tasks of local market operators including possible assignment or delegation of tasks.

5. Title IV Market design for congestion management and voltage control

Art	Chapter10. Congestion Management Products	Highlights
58	List of attributes	<ul style="list-style-type: none"> List of attributes for congestion management products to be published by ENTSO-E and DSO Entity 6 months after entry into force, reviewed every 2 years. Nationally standardized congestion management products shall use attributes of the list. Nationally standardized products proposed as part of national TC pursuant to article 48, ensuring transparent consultation and non-discrimination, while also addressing specific needs from systems operators. If applicable, day-ahead, intraday or balancing products part of the list of standardized products for congestion management.
59	Requirements for the definition of congestion management products	
60	Products from Day-ahead, intraday or balancing markets	

6. Title V Systems operators-owned storage facilities

Art		Highlights
61	Procedure for sharing storage ownership or operations	<ul style="list-style-type: none">• Further conditions on tendering for market-based solutions (addition to art 50) and involvement of NRA, before allowing systems operators to own and operate storages.
62	Shared storage ownership and operations agreement	<ul style="list-style-type: none">• Conditions to engage in tender to share ownership or operations of storage and select third party (as 2nd best solution to full ownership of storage by systems operators).
63	Assessing and transferring ownership of systems operators owned storages	<ul style="list-style-type: none">• Rights and duties of systems operators and third party while sharing the storage, including provisions for changing of ownership shares and possible future transfer from systems operators to third party.• Process to assess whether it is preferable 1) to phase-out systems operators activity and have them purchase the necessary services from third party or 2) to keep systems operators storage activity.• Role of NRA to assess the overall cost-benefit analysis and to ensure systems operators phase out storage activity within 18 months if this is the preferable solution.

7. Title VI Distribution network development plans

Art	Chapter11. Distribution Network Development	Highlights
64	Process and Content of the Distribution Network Development Plan (DNDP)	<ul style="list-style-type: none"> • This title develops Art 32 from the Electricity Directive (Incentives for the use of flexibility in distribution networks).
65	General principles on the DNDP planning methodology	<ul style="list-style-type: none"> • Distribution Network Development Plans aim to identify future grid investments and provide information to market participants about the future needs of congestion management or voltage services.
66	Requirements on development scenario(s)	<ul style="list-style-type: none"> • Scenarios used by system Operators should all be coordinated with each other.
67	Congestion management and voltage control services in the DNDP	<ul style="list-style-type: none"> • DNDP includes the methodology and criteria to evaluate flexibility services as an alternative to grid investments.
68	DNDP public consultation and publication	<ul style="list-style-type: none"> • DSO should perform a public consultation to stakeholders before submitting DNDP to NRA (no less than 6 weeks for consultation process). All comments should be included in the submitted version of DNDP. • Regulatory authority might require amendments of the DNDP. • The scope of the DSO grid observability areas are assessed with the DNDP (when recurrent future flexibility needs are identified).

8. Title VII TSO-DSO coordination and DSO-DSO coordination

Art		Highlights
69	National implementation and condition for coordination	<ul style="list-style-type: none"> Each system operator must provide quality of supply and grid operational procedures should be fulfilled.
70	General principles for system operators' coordination	<ul style="list-style-type: none"> A congestion or voltage issue might involve several TSO and/or DSO -> need to set further coordination rules between DSO-DSO and TSO-DSO .
71	Principles for the definition of DSO observability area	<ul style="list-style-type: none"> Limitations to services located in other system operators grids may considered in long and short-term.
72	Principles for forecasting, identifying congestion and voltage control issues through active power	<ul style="list-style-type: none"> In the long-term: Grid prequalification processes involve the connecting and intermediate system operators: approved / not approved / conditionally prequalified. In the short-term: Temporary limits consider unforeseen events in the network that might affect the provision of flexibility.
73	Principles for solving congestion and voltage control issues	<ul style="list-style-type: none"> These coordination rules need data from other system operators (DSO Observability areas) in order to have more reliable and accurate forecasts.
74	Short-term procedures to account for DSO limits	<ul style="list-style-type: none"> Forecasting and solving a congestion or voltage issues might involve Service Provider Groups / Service Provider Units from different TSO and DSO.
75	Grid prequalification	<ul style="list-style-type: none"> Need to define which system operator: start the process, procures the services, take actions to solve issues, etc.
76	Data exchange between DSOs-DSOs and DSOs-TSO	<ul style="list-style-type: none"> Need to ensure system balancing in the national Terms and Conditions.
77	Ensuring system balance	<ul style="list-style-type: none"> Need to ensure system balancing in the national Terms and Conditions.

9. Title VIII Data exchange requirements from grid users

Art		Highlights
78	Organisation, roles, responsibilities and quality of data exchange	<ul style="list-style-type: none"> Provisions of this title shall not replace but complement System Operation Guideline and its national implementation.
79	Data to be provided by service providers of congestion management and voltage control services	<ul style="list-style-type: none"> National terms and conditions shall define how the information shall be exchanged. A justification of the need for the data requested at national level shall be provided to the National Regulatory Authority jointly with the national Terms and Conditions for service providers.
80	Data to be provided by grid users	<ul style="list-style-type: none"> National terms and conditions shall determine the applicability, scope and granularity of the data exchange of the following categories: <ol style="list-style-type: none"> Structural data; Scheduling and forecast data; Data in real-time; All data necessary for prequalification of service provision; All data necessary for verification of service provision, where relevant; and All data necessary for performance of activation tests, when relevant. With National Regulatory Authority approval system operators can extend applicability of a)-c) to DSO grid users within observability area that are not Service Providing Unit/Service Providing Group if needed for forecasting or maintain operational security.

10. Title IX Voltage control

Art		Highlights
81	Voltage control services with use of reactive power	<ul style="list-style-type: none">• System operators' procedure to follow if mandatory requirements are not enough.• Market based solution is preferred.• Technical attributes shall be selected.• Data exchange requirements adjusted to service.

11. Title X Derogations, and monitoring

Art		Highlights
82	Derogations	<ul style="list-style-type: none">• Derogations rules similar to other network codes and guidelines.
83	Monitoring reports	<ul style="list-style-type: none">• ACER shall deliver monitoring reports.• European process shall be established and include:
84	Harmonisation	<ul style="list-style-type: none">○ aggregation models; benefits and drawbacks for each type of aggregation models;○ product verification processes and product prequalification processes, in particular the identification of cases where product prequalification can be replaced by product verification as well as simplifications in these processes, requirements and activations tests where applicable, including specific simplifications for small controllable units and standardised devices;○ options for market-based congestion management including products, updated list of European attributes, procurement methods, overall market design and systems operators coordination;○ Mitigation measures to prevent gaming in local markets and their effectiveness; and○ Description of how catch-up effects are considered.• Every 3 years after the entry into force of regulation.• A proposal for the methodology to further harmonising the areas shall be developed jointly by ENTSO-E and EU DSO Entity and submitted to ACER for review and approval.

12. Title XI Transitional and final provisions

Art		Highlights
85	Transitional provisions for xxx and yy countries	<ul style="list-style-type: none">• similar to other network codes and guidelines.• To comply with the requirements of this Regulation, the relevant clauses in contracts or general terms and conditions have to be amended within 3 years.
86	Amendment of contracts and general terms and conditions	
87	Entry into force	

13. Questions and Answers



14. Closing



Thank you!

